

IN THE CLAIMS:

Please amend Claims 1, 3-4, 11-15, 17-20, 22-24, 27-29, 31-32, 39-42, 44, 46, 48, 54-55, 61, 62, 64, and 72-73, as follows, and cancel Claims 6, 8-10, 21, 25, 26, 30, 34, 38, 49-52, 57-60, 67-71, and 74-76.

5.5 C 1 >

1. (Currently Amended) An image processing method comprising:  
~~the modify step of modifying a first image to obtain a second image on the basis of a first signal and a second signal, wherein said first signal is obtained by extracting an edge of the first image, said edge having a thickness according to an attribute of the entire first image, and wherein said and a second signal is obtained by reducing [[the]] a number of tone levels.~~
2. (Original) The method according to claim 1, wherein the second signal is a signal processed by decreasing the number of tone levels of the first image and increasing brightness.
3. (Currently Amended) The method according to claim 1, ~~wherein the modify step which includes the step of simultaneously generating the first and second signals as the second image.~~
4. (Currently Amended) The method according to claim 3, ~~wherein the modify step which includes the step of generating the first and second signals by filtering the first image using a predetermined filter.~~

5. (Original) The method according to claim 4, wherein the predetermined filter has coefficients, a sum total of which is positive.

6. (Cancelled)

5.5 C, 7. (Original) The method according to claim 5, wherein the predetermined filter has a pixel of interest having a positive coefficient, and all other pixels having negative coefficients.

8-10. (Cancelled)

5.6 C, 11. (Currently Amended) The method according to claim 4, wherein the predetermined filter is defined by that some of the coefficients of the predetermined filter, for pixels other than a coefficient of a pixel of interest are "0".

12. (Currently Amended) The method according to claim 4, wherein the modify step which includes the step of setting the filter on the basis of brightness of the first image.

13. (Currently Amended) The method according to claim 12, wherein the modify step includes which the step of setting a larger sum total of coefficients in the filter as the first image is darker.

14. (Currently Amended) The method according to claim 13, further comprising [[the]] a luminance distribution calculation step of calculating a luminance distribution of the first image, and

wherein the modify step which includes the step of detecting brightness of the first image on the basis of the luminance distribution.

15. (Currently Amended) The method according to claim 14, wherein the modify step which includes the step of detecting brightness of the first image on the basis of an average luminance of the first image.

16. (Original) The method according to claim 14, wherein the luminance distribution calculation step includes the step of generating a luminance histogram of the first image.

17. (Currently Amended) The method according to claim 16, wherein the modify step which includes the step of detecting brightness of the first image on the basis of a median of [[the]] a luminance histogram.

18. (Currently Amended) The method according to claim 16, wherein the modify step which includes the step of detecting brightness of the first image on the basis of a maximum frequency value of the luminance histogram.

19. (Currently Amended) The method according to claim 14, further

comprising [[the]] a correction step of correcting the first image on the basis of the luminance distribution, and

~~wherein the modify step which includes the step of setting the filter on the basis of a correction condition generated in the correction step.~~

20. (Currently Amended) The method according to claim 4, ~~wherein the modify step which includes the step of modifying the first image in units of blocks each consisting of a predetermined number of lines, and controlling a size of the filter in accordance with an object line position for modifying in the block.~~

21. (Cancelled)

5.3 C.1>  
22. (Currently Amended) An image processing method comprising:  
modifying a first image to obtain a second image on the basis of a  
first signal obtained by extracting an edge of the first image, and a second signal obtained  
by reducing a number of tone levels, wherein the first image is a photo image, and The  
method according to claim 21, further comprising the  
a decoding step of decoding the first image if the first image is  
block-encoded .

23. (Currently Amended) The method according to claim 22, ~~wherein the modify step which includes the step of modifying the first image decoded in the decoding step to obtain the second image after the first image is smoothed.~~

24. (Currently Amended) An image processing method comprising:  
modifying a first image to obtain a second image on the basis of a  
first signal obtained by extracting an edge of the first image, and a second signal obtained  
by reducing a number of tone levels, wherein the first image is a photo image, and The  
method according to claim 21, wherein the modify step includes the step of tentatively  
block-encoding and decoding the first image when the first image is not a block-encoded  
image, and then modifying the first image to obtain the second image.

25-26. (Cancelled)

5,5 C, > 27. (Currently Amended) The method according to claim 26 1, wherein  
the attribute of the entire first image is an image size.

28. (Currently Amended) The method according to claim 26 1, wherein  
the attribute of the entire first image is an image resolution.

29. (Currently Amended) The method according to claim 26 1, wherein  
the attribute of the entire first image is manually set.

30. (Cancelled)

5,5 C, > 31. (Currently Amended) An image processing method comprising:

5.5c.)

modifying a first image to obtain a second image on the basis of a first signal and a second signal, wherein said first signal is obtained by extracting an edge of the first image, said edge having a thickness according to an attribute of the entire first image, and wherein said second signal is obtained by reducing a number of tone levels;  
a instruction input step for inputting a user instruction that selects a desired one of a plurality of modify modes; and

20) a image process step for executing an image process for image data using the modify mode corresponding to the user instruction,

wherein the plurality of modify modes include an illustration mode for converting the first image into the second image in the modify step, and The method according to claim 30, wherein the instruction input step includes the step of selecting the first image from a plurality of images, selecting the illustration mode as the modify mode for the first image, and setting detailed modify contents in the illustration mode.

32. (Currently Amended) The method according to claim 31, wherein the modify step which includes the step of setting a filter on the basis of the detailed setup contents in the instruction input step, and generating the first and second signals by a filter process using the filter.

33. (Original) The method according to claim 32, wherein the detailed setup contents include setups of brightness of the modified image.

34. (Cancelled)

5.5 C, 1>

35. (Original) The method according to claim 31, wherein the detailed setup contents include setups as to whether or not the modified image is grained.

36. (Original) The method according to claim 35, wherein when the detailed setup contents are set with grainy conversion of the modified image, the first image is controlled to have block distortion.

37. (Original) The method according to claim 36, wherein when the detailed setup contents are set with grainy conversion of the modified image, the first image is controlled to be a JPEG-encoded image.

38. (Cancelled)

5.5 C, 1>

39. (Currently Amended) An image processing method comprising:  
modifying a first image to obtain a second image on the basis of a  
first signal obtained by extracting an edge of the first image, and a second signal obtained  
by reducing a number of tone levels;  
a instruction input step for inputting a user instruction that selects a  
desired one of a plurality of modify modes;

a image process step of executing an image process for image data  
using a modify mode corresponding to the user instruction, wherein the plurality of modify  
modes include a illustration mode for converting the first image into the second image in  
the modify step, and wherein the plurality of modify modes further include a monochrome

effect mode for converting the first image into a monochrome image, and The method according to claim 38, wherein the image process step includes the step of executing the illustration mode for converting the first image into the second image and then executing the monochrome effect mode for converting the second image into a monochrome image when the user instruction designates both the illustration mode and the monochrome effect mode.

40. (Currently Amended) The method according to claim 39, wherein the illustration mode includes the step of converting a luminance and a color difference signals signal of the first image, and

the monochrome effect mode includes the step of converting the color difference signals of the second image.

41. (Currently Amended) An image processing method comprising:  
modifying a first image to obtain a second image on the basis of a  
first signal obtained by extracting an edge of the first image, and a second signal obtained  
by reducing a number of tone levels;

a instruction input step for inputting a user instruction that selects a  
desired one of a plurality of modify modes;

a image process step of executing an image process for image data  
using the modify mode corresponding to the user instruction, wherein the plurality of  
modify modes include an illustration mode for converting the first image into the second  
image in the modify step, and wherein the plurality of modify modes further include a

~~monochrome effect mode for converting the first image into a monochrome image, and  
The method according to claim 38; wherein the instruction input step allows to set a hue in  
the monochrome effect mode.~~

42. (Currently Amended) The method according to claim 1, further comprising:

~~[[the]] a segmentation step of segmenting the first image into a plurality of regions; and  
[[the]] a setting step of setting processing contents of each of the segmented regions, and  
wherein the modify step includes the step of modifying includes the first image in units of regions to obtain the second image.~~

43. (Original) The method according to claim 42, wherein the segmentation step includes the step of obtaining a plurality of regions by generating the first image in units of regions.

44. (Currently Amended) The method according to claim 42, wherein the setting step includes the step of setting filters in units of regions, and  
the modify step modifying includes the step of generating the first and second signals by executing a filter process using [[the]] filters set in units of regions.

45. (Original) The method according to claim 44, wherein the setting

step includes the step of setting a filter in correspondence with a size of the region.

46. (Currently Amended) The method according to claim 45, wherein the setting step includes the step of setting a filter in correspondence with [[the]] a number of lines in the region.

47. (Original) The method according to claim 44, wherein the filter set in the setting step includes a filter having different line and column sizes.

48. (Currently Amended) The method according to claim 44, wherein the setting step includes the step of setting coefficients of the ~~filter~~ filters for each region.

49-52. (Cancelled)

53. (Original) The method according to claim 44, wherein the setting step includes the step of setting a predetermined filter for a region having a size not less than a predetermined size.

54. (Currently Amended) An image processing method comprising:  
a modify step that modifies a first image to obtain a second image on  
the basis of a first signal obtained by extracting an edge of the first image, and a second  
signal obtained by reducing a number of tone levels;

a segmentation step for segmenting the first image into a plurality of

regions; and

a setting step for setting processing contents of each of the plurality of regions, wherein the setting step includes the step of setting filters in units of regions, and

wherein the modify step includes the steps of modifying the first image in units of regions to obtain the second image, and further includes the modify step of generating the first and second signals by executing a filter process using the filters set in units of regions, and

~~The method according to claim 44, wherein the setting step further includes the step of setting the filter on the basis of a user instruction.~~

55. (Currently Amended) An image processing apparatus comprising:  
input means for inputting a first image;  
modify means for modifying [[the]] a first image to obtain a second image on the basis of a first signal obtained by extracting an edge of the first image, and a second signal obtained by reducing the number of tone levels;  
wherein the first signal is a signal obtained by extracting an edge having a thickness according to an attribute of the entire first image, and  
output means for outputting the second image.

56. (Original) The apparatus according to claim 55, wherein said modify means obtains the second image by filtering the first image using a predetermined filter.

61. (Currently Amended) An image processing apparatus comprising:  
input means for inputting a first image;  
modify means for modifying a first image to obtain a second image  
on the basis of a first signal obtained by extracting an edge of the first image, and a second  
signal obtained by reducing the number of tone levels;  
output means for outputting the second image;  
instruction input means for inputting a user instruction that selects a  
desired one of a plurality of modify modes; and  
image process means for executing an image process for image data  
using the modify mode corresponding to the user instruction, and  
wherein the plurality of modify modes include an illustration mode for  
converting the first image into the second image by said modify means, and  
wherein the plurality of modify modes further include a monochrome effect  
mode for converting the first image into a monochrome image, and  

The apparatus according to claim 60, wherein when the user instruction designates both the illustration mode and the monochrome effect mode, said image process means executes the illustration mode for converting the first image into the second image, and then executes the monochrome effect mode for converting the second image into a monochrome image.

62. (Currently Amended) The apparatus according to claim 55, further

comprising:

segmentation means for segmenting the first image into a plurality of regions; and

setting means for setting processing contents of each of the segmented plurality of regions, and

wherein said modify means modifies the first image in units of regions to obtain the second image.

63. (Original) The apparatus according to claim 62, wherein said segmentation means obtains a plurality of regions by generating the first image in units of regions.

64. (Currently Amended) An image processing system which connects an image processing apparatus for generating a second image on the basis of a first image, and an image output apparatus for outputting the second image,

said image processing apparatus having modify means for modifying the first image to obtain the second image on the basis of a first signal obtained by extracting an edge of the first image, and a second signal obtained by reducing the number of tone levels,

wherein the first signal is a signal obtained by extracting an edge having a thickness according to an attribute of the entire first image.

65. (Original) The system according to claim 64, wherein said modify

means obtains the second image by filtering the first image using a predetermined filter.

66. (Original) The system according to claim 65, wherein said modify means executes different filter processes in units of regions of the first image.

67-71. (Cancelled)

*Sub C.1 >*  
72. (Currently Amended) An image processing system which connects an image processing apparatus for generating a second image on the basis of a first image, and an image output apparatus for outputting the second image,

*said image processing apparatus having modify means for modifying the first image to obtain the second image on the basis of a first signal obtained by extracting an edge of the first image, and a second signal obtained by reducing the number of tone levels;*

*instruction input means for inputting a user instruction that selects a desired one of a plurality of modify modes;*

*image process means for executing an image process for image data using the modify mode corresponding to the user instruction, and*

*wherein the plurality of modify modes include an illustration mode for converting the first image into the second image, and*

*The system according to claim 71, wherein the plurality of modify modes further include a monochrome effect mode for converting the first image into a monochrome image, and*

when the user instruction designates both the illustration mode and the monochrome effect mode, said image process apparatus executes the illustration mode for converting the first image into the second image, and then executes the monochrome effect mode for converting the second image into a monochrome image.

73. (Currently Amended) Storage medium storing a program code of an image process, said program code including at least:

[[a]] code of [[the]] a modify step [[of]] for modifying a first image to obtain a second image on the basis of a first signal obtained by extracting an edge of the first image, and a second signal obtained by reducing the number of tone levels

wherein the first signal is a signal obtained by extracting an edge having a thickness according to an attribute of the entire first image.

74-76. (Cancelled)